

58. A lined multi-branch fitting comprising:

a one-piece multi-branch hollow liner having a plurality of intersecting non-metallic hollow cylindrical branches in fluid communication with each other;

a plurality of individual confronting metal housing members, assembled over and snugly receiving said non-metallic branches, having confronting terminal ends disposed in confronting relation with each other; and

a fillet weld bead integrally coupling said terminal ends of said confronting terminal ends of said metal housing members together in sealed relation with each other;

said metallic housing members each comprising a radially inner portion having a radially inner surface snugly receiving said liner and a radially outer portion having a radially outer surface; said radially inner portion of one of said housing members including an end face provided with a notch adjacent said liner; said inner portion of the other of said confronting metallic housing members including a confronting end face housing, a male projection complementally formed to, and received by, said notch, and abutting said liner.

59. A lined multi-branch fitting comprising:

a one-piece multi-branch hollow liner having a plurality of intersecting non-metallic hollow cylindrical branches in fluid communication with each other;

a plurality of individual confronting metal housing members, assembled over and snugly receiving said non-metallic branches, having confronting terminal ends disposed in confronting relation with each other; and

a fillet weld bead integrally coupling said terminal ends of said confronting terminal ends of said metal housing members together in sealed relation with each other;

*D
cont.*
said metallic housing members each including a radially inner portion having a radially inner surface snugly receiving said liner and a radially outer portion;

said radially inner portions including complementally formed nested male and female terminal end portions.

7/70. A lined multi-branch fitting comprising:

a one-piece multi-branch hollow liner having a plurality of intersecting non-metallic hollow cylindrical branches in fluid communication with each other;

a plurality of individual confronting metal housing members, assembled over and snugly receiving said non-metallic branches, having confronting terminal ends disposed in confronting relation with each other; and

a fillet weld bead integrally coupling said terminal ends of said confronting terminal ends of said metal housing members together in sealed relation with each other;

one of said confronting terminal ends comprising a radially outer arcuate portion having a first end face and an integral, radially inner, liner receiving arcuate portion having a terminal male projection which projects beyond said first terminal end face of said radially outer arcuate portion;

D' cont.
said male projection including a second terminal end face; another of said confronting terminal ends comprising a second radially outer arcuate portion having a third terminal end face and an integral, radially inner, liner receiving arcuate portion having a fourth terminal end face which is recessed relative to said third end face to form a notch for complementally receiving said male projection;

said second terminal end face being disposed in abutting relation with said fourth terminal end face.

10 ~~71.~~ A lined multi-branch fitting comprising:

a one-piece multi-branch hollow liner having a plurality of intersecting non-metallic hollow cylindrical branches in fluid communication with each other; .

a plurality of individual confronting metal housing members, assembled over and snugly receiving said non-metallic branches, having confronting terminal ends disposed in confronting relation with each other; and

a fillet weld bead integrally coupling said terminal ends of said confronting terminal ends of said metal housing members together in sealed relation with each other;

said liner including a hollow cylindrical base having opposite ends and a transversely disposed integral cylindrical neck projecting from said cylindrical base between said opposite ends;

said confronting metallic housing members including

confronting, elongate hollow cylindrical metal bases receiving said opposite ends of said liner, and

confronting substantially semi-cylindrical transversely extending, integral neck portions, integral with said cylindrical metal bases, receiving opposite sides of said cylindrical neck of said liner;

said metallic housing members each including radially inner arcuate portions of a predetermined radial thickness and having a radially inner surface snugly receiving said liner and radially outer arcuate portions of a second predetermined radial thickness having a radially outer surface;

said radially inner arcuate portion of one of said metallic housing members including an end face provided with an elongate notch adjacent said liner;

said radially inner portion of the other of said confronting metallic housing members including an elongate male strip

projection complementally received by said notch and abutting said liner;

said radially outer portion of said other metallic housing member being relieved in a direction away from said radially inner male strip projection to provide a radially outwardly opening weld bead receiving opening receiving said weld bead.

14/72. A lined multi-branch fitting comprising:

D
cont.
a one-piece multi-branch hollow liner having a plurality of intersecting non-metallic hollow cylindrical branches in fluid communication with each other;

a plurality of individual confronting metal housing members, assembled over and snugly receiving said non-metallic branches, having confronting terminal ends disposed in confronting relation with each other; and

a fillet weld bead integrally coupling said terminal ends of said confronting terminal ends of said metal housing members together in sealed relation with each other;

said confronting terminal ends including radially inner and outer portions, said radially inner portion of said confronting end of one of said metal housing members including heat barrier means for inhibiting weld heat generated in a radially outer portion of said confronting end of the other of said metal housing members, as said fillet weld bead is being formed, from transferring to said liner;

said heat barrier means comprising a male projection on said one of said confronting metallic housing members and cooperating female notch on another of said other confronting metal housing members receiving said male projection.

15/73. A lined multi-branch fitting comprising:

a one-piece multi-branch hollow liner having a plurality of intersecting non-metallic hollow cylindrical branches in fluid communication with each other;

D!
cont. a plurality of individual confronting metal housing members, assembled over and snugly receiving said non-metallic branches, having confronting terminal ends disposed in confronting relation with each other; and

a fillet weld bead integrally coupling said terminal ends of said confronting terminal ends of said metal housing members together in sealed relation with each other;

insulating means, integrally formed on a radially inner portion of said confronting terminal end of one of said housing members, for insulating a portion of said liner adjacent a radially inner portion of said terminal end of another of said confronting housing members from weld bead applied to a radially outer portion of said terminal end of said other housing member;

said insulating means comprising a radially inner strip projecting in a direction outwardly away from said terminal end of said one housing member to a position between said liner portion

and said radially inner end portion of said another metal housing member;

said radially inner end portion of said another metal housing member comprising a radially inwardly opening notch provided in said radially inner portion of said terminal end face of said another metal housing member.

D
cont
~~16~~ 14. In a multi-branch fitting having a metal housing lined with a one-piece non-metallic hollow multi-branch liner having a plurality of angularly related hollow cylindrical ends; said metal housing comprising:

a plurality of individual metal housing members which are disposed over said plurality of hollow ends in a confronting relation with each other;

each of said metal housing members including

a radially outer arcuate portion, and

an integral radially inner arcuate portion having radially inner surfaces snugly receiving said liner; said radially inner arcuate portions of adjacent confronting metal housing members including complementally formed male and female parts disposed in nested relation with each other; and

a fillet weld metal bead disposed radially outwardly of said male and female parts coupling said confronting metal housing members together.

~~19~~ 15. A lined multi-branch fitting comprising:

a preformed one-piece liner of heat degradable material having a plurality of intersecting non-metallic, hollow cylindrical branches in fluid communication with each other;

a plurality of metal housing members assembled about said preformed liner including adjacent inner ends each having radially outer and radially inner end portions;

a fillet weld bead joining a radially outer portion of one of said housing members to the other of said housing members; and

D
cont.
insulating means on said radially inner end portion of one of said housing members for insulating a portion of said liner adjacent said radially inner portion of said one housing member from any heat in said radially outer portion of said one housing member;

said insulating means comprising a radially inwardly opening notch provided in said radially inner end portion of said one housing member and a male projection on said radially inner end portion of said other housing member received by said notch and abutting said liner.

~~32-36~~. A lined multi-branch fitting comprising:

a one-piece multi-branch hollow liner having a plurality of intersecting non-metallic hollow cylindrical branches in fluid communication with each other;

a plurality of individual confronting metal housing members, assembled over and snugly receiving said non-metallic branches,

having confronting terminal ends disposed in confronting relation with each other; and

a fillet weld bead integrally coupling said terminal ends of said confronting terminal ends of said metal housing members together in sealed relation with each other;

one of said confronting ends including

a radially outer end portion having a first radially outer end face, and

D
cont.
a radially inner end portion having a first radially inner end face relieved relative to said radially outer end face to define a radially inwardly opening, radially inner notch;

the other of said confronting ends including

a radially outer end portion having a second radially outer end face, confronting but spaced from said first outer end face to define a weld channel there-between for receiving said fillet weld, and

a radially inner end portion received by said notch having a second radially inner end face projecting outwardly beyond said second radially outer face and disposed in abutting relation with said first radially inner end face.

23 17. A lined multi-branch fitting comprising:

first and second metallic structural members assembled to form a hollow cylindrical base with opposite ends and a transversely

disposed cylindrical neck projecting from said base between said opposite ends;

said structural members each having a terminal end disposed in confronting relation with the terminal end of the other structural member;

a one-piece T-shaped hollow liner of heat degradable material having a plurality of intersecting hollow branches in fluid communication with each other, lining the surface of said first and second metallic members;

D
cont.
said terminal end of said first metallic member having a radially inner edge having a radially inner, radially inwardly opening, female recess radially inwardly adjacent a radially outer elongate projection;

said terminal end of said second metallic member including:

a radially inner edge having a projecting tongue bearing against said liner and received by said female recess, and

a radially outer, annularly extending weld recess radially outwardly of said projecting tongue, confronting said radially outer elongate projection; and

weld metal received in said weld recess to provide an annular fillet weld bead welding said first and second metallic structural members together.